Wisconsin DNR 24K Hydrography Version 3
Shapefile Data Dictionary

Authors: Sally Willis, Walter Jaeger, and Andrew Selk
Wisconsin Department of Natural Resources
Bureau of Enterprise Information Technology & Applications
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SHAPEFILE DATA DICTIONARY

The 24K Hydro database is an ArcInfo coverage with a robust data model to support a variety of user needs. To further accommodate user needs, a series of shapefiles have also been developed from the ArcInfo coverage. The shapefiles will more easily support the use of the hydro data in ArcView software. The following is an overview of the six hydro shapefiles derived from the 24K hydro hydnw924 coverage:

- Hydro arc shapefile -**hydlarc.shp**
- Hydro shaid shapefile **- hydrshai.shp**
- Hydro stem measured shapefile **- hydtstem.shp**
- Hydro upland and island shapefile **- hydrupld.shp.**
- Hydro polygon shapefile **- hydppoly.shp**
- Hydro mask shapefile – **hydpmask.shp**

SHAPEFILE NAMES AND DESCRIPTIONS

1. **hydlarc.shp** – (Hydro Line/Arc Shapefile) A shapefile containing all arcs in the 24K hydro coverage. The arcs are attributed to easily define themes based on cartographic or modeling needs. The arcs contain names and Water Body Id Codes (WBICs). This shapefile should be used for cartographic, and analytic purposes pertaining to lines, and for hydrographic modeling and network traces.

Item Definitions:

Item Name	Length		Type
SHAPE			Geometry
FNODE_	9		Long Integer
TNODE_	9		Long Integer
LPOLY_	9		Long Integer
RPOLY_	9		Long Integer
LENGTH	18	3	Double
HYDNW924_	9		Long Integer
HYDNW924-I	9		Long Integer
SW_NO *	9		Long Integer
RIVSYSNAME *	50		Text
RIVSYSWBIC *	9		Long Integer
CARTO	3		Text
LINEAR_TYP *	2		Text
QUADLINE	3		Text
DURATION	2		Text
LANDLOCKED	3		Text
FLOW *	2		Text
LR_BANK	2		Text
AR_BND_TYP	4		Text
OH_SRC_YR	9		Long Integer
OH_COL_MTH	6		Text
OH_SRC_DNM	9		Long Integer
XREF	9		Long Integer
BUILD_DATE			Date
HYD_VER	9		Long Integer
WGS-ID	9		Long Integer
WBIC_BY	7		Text
WBIC_DATE			Date

WBIC_STAT	10	Text
GEOM_CHFLG	9	Long Integer
NAT_CHFLG	9	Long Integer
GNIS_CHFLG	9	Long Integer
WBIC_CHFLG	9	Long Integer
REF_CHFLG	9	Long Integer
FLIP_CHFLG	9	Long Integer
NEW	9	Long Integer

* Items indexed to accelerate logical queries.

Item Descriptions:

SHAPE – Default shapefile item
FNODE_ – From-node number; default ArcInfo item from coverage
TNODE_ – To-node number; default ArcInfo item from coverage
LPOLY_ – Left polygon number; default ArcInfo item from coverage
RPOLY_ – Right polygon number; default ArcInfo item from coverage
LENGTH – Arc length; default ArcInfo item in cover units (meters) from coverage
HYDNW924_ – Record number; default ArcInfo item from coverage
HYDNW924-I – Identification number; default ArcInfo item from coverage
SW_NO – (Surface Water Number) A unique numerical identifier for each arc. This item is indexed.
RIVSYSNAME – (River System Name) The name of the river system. This item is indexed. Names based on the USGS Geographic Names Information System (GNIS). Excluding in-coming tributaries, any linear water feature holding the same name as the main river to which it is attached would be considered part of that river system. Examples: centerlines through reservoir/flowages, flow potentials through backwaters and secondary flow features (braided streams)

<GNIS Name>	The name provided by GNIS. Names only apply to arcs that carry flow.
'Unnamed'	No GNIS name for that feature. “Unnamed” only applies to arcs that carry flow.
'NA'	Not Applicable. NA applies to all arcs that do NOT carry flow.

RIVSYSWBIC – (River System Water Body ID Code) The Water Body ID Code (WBIC) of the river system. This item is indexed. WBICs from the DNR’s Register of Waterbodies (ROW) database. Excluding in-coming tributaries, any linear water feature holding the same WBIC as the main river to which it is attached would be considered part of that river system. Examples: centerlines through reservoir/flowages, flow potentials through backwaters and secondary flow features (braided streams).

<WBIC>	The WBIC provided by ROW. WBIC values only apply to arcs that carry flow.
0	No WBIC provided from ROW to assign to that feature. 0’s only apply to arcs that carry flow.
-1	Not Applicable. -1 applies to all arcs that do NOT carry flow.

CARTO – An item that allows for easy cartographic representation.

'YES'	Includes the following Linear Types {'BK' , 'CB' , 'DC' , 'ST' , 'UN' , 'ZZ'}.
'NO'	Includes the following Linear Types {'EX' , 'CL' , 'WG' , 'OC' , 'XX' , 'FP' , 'CW' and 'BF'}.

LINEAR_TYP – (Linear Type) A two-character type code for all arcs that indicates the linear hydrographic feature types. This item is indexed.

BF	State Boundary Buffer
BK	Bank or Shoreline
CB	Cranberry Bog Waterway
CL	Stream Center Line
CW	Channel in Water Area
DC	Ditch or Canal
EX	Stream Extension
FP	Flow Potential
OC	Original Water Course
ST	Single-line Stream
UN	Unknown
WG	Wetland Gap Connector
XX	Closure Line
ZZ	Convoluted Stream

QUADLINE – Indicates whether or not an arc closes off water polygons at quadrangle boundaries when the water polygons may not match from one quad to the next.

YES	Yes
NO	No

DURATION – A code for all arcs that indicates the span of time in which the feature contains water

PN	Perennial (based on cartographic symbolization)
FX	Fluctuating (based on LINEAR_TYP *and* cartographic symbolization) E.g. diffuse connectors and wetland gaps. (All are based on LINEAR_TYP)
IT	Intermittent (based on cartographic symbolization)
NA	Not applicable (for original water courses, channels in rivers, closure lines, etc.)

LANDLOCKED – Indicates whether or not a water feature is part of a landlocked hydro network.

YES	Part of hydro network that does not flow out of the state.
NO	Part of network that flows into Lake Superior, Lake Michigan or the Mississippi River
NA	Not Applicable. NA applies to all arcs that do NOT carry flow.

FLOW – A character code for all arcs that indicates whether the flow of water is primary or secondary. This item is indexed.

P	Primary
S	Secondary
NA	Not Applicable. NA applies to all arcs that do NOT carry flow.

LR_BANK – (Left/Right Bank) A character code for all arcs indicating whether the water polygon boundary is on the left or right side. Left and right are determined by the flow direction. Streams, flowages, and 'water polygons with centerlines or flow potential' will be given left and right designations. Those arcs not satisfying those criteria are coded as not applicable.

L	Left
R	Right

LR	Left and Right (single-line streams)
NA	Not Applicable. NA applies to the following linear types: CW, OC, UN, BF, CL, XX, EX, FP.

AR_BND_TYP – (Area Boundary Type) A four-character description code that reveals the POLY_TYP on either side of the linear feature (created by the combination of the two POLY_TYPs on either side of a given line). Examples of the two hundred and eighty-nine possible combinations are:

DPUP	Duck pond/upland (outline of a duck pond)
ISLP	Island/lake-pond (island shoreline)
LPUP	Lake-pond/upland (lake shoreline)
LPST	Closure line between a lake and stream
RFUP	Reservoir-flowage/upland (reservoir shoreline)
STUP	Stream/upland (stream bank)

OH_SRC_YR – (Original Horizontal Source Year) The most recent year of the data source that was utilized in our data capture; WIDNR constructed features (OH_COL_MTH of TAB002, SCR004 or SCR006) carry the year date that the watershed processing was completed.
OH_COL_MTH – (Original Horizontal Collection Method) A character code indicating the method of data conversion. (i.e. how the arc was created/derived)

CNV001 – Provided in digital form from known source and converted for DNR use
SCN001 – Scanning or vectorizing technique
SCR003 – Digitized on screen: feature published/visible on USGS 7.5' DRG
SCR004 – Digitized on screen: feature interpreted from USGS 7.5' DRG
SCR005 – Digitized on screen: feature published/visible on digital vector data
SCR006 – Digitized on screen: feature interpreted from digital vector data
TAB001 – Digitized on table: feature published/visible on map sheet
TAB002 – Digitized on table: feature interpreted from map sheet

OH_SRC_DNM – (Original Horizontal Source Denominator) Denominator of map scale source
XREF – Primary key link to GNIS data.
BUILD_DATE – A processing date indicating when the feature was added and verified by the editor.
HYD_VER – A numeric value indicating the most recent release number in which the feature was edited. The first release will have all arcs valued at 1.
WGS-ID – The Wisconsin Geological Survey quad identification code.
WBIC_BY – ID of editor who verified WBIC
WBIC_DATE – Date individual feature was quality assured for WBIC
WBIC_STAT – Indicates current status of WBIC designation

LOCATED – Feature does not have final approval from Don Fago.

NOT ASSIGNED – Feature has not been given a WBIC value.
ACCEPTED – Feature has been given a WBIC value.
NA – Applies to all arcs that carry no flow

GEOM_CHFLG – Any dimensional or positional changes to the feature.

1 – Feature has been changed geometrically
0 – Feature has not been changed geometrically

NAT_CHFLG – Any change to the natural attributes of the feature (such as LINEAR_TYP, DURATION, FLOW, LANDLOCKED).

1 – At least one natural attribute of the feature has changed
0 – No natural attributes have changed

GNIS_CHFLG – Any change to the GNIS item (RIVSYSNAME)

1 – The GNIS name has changed
0 – No name change

WBIC_CHFLG – Any change to the WBIC value (RIVSYSWBIC)
1 – WBIC attribute has been altered
0 – WBIC unchanged

REF_CHFLG – Any change to the reference items of the feature (WBIC_BY, WBIC_DATE, WBIC_STAT (any of those three unless WBIC_CHFLG is also set), QUADLINE, OH_SRC_YR, OH_COL_MTH, OH_SRC_DNM, XREF or WGS-ID).
1 – One or more items in the above list have been altered
0 – No changes

FLIP_CHFLG – Arc that has been flipped (direction reversed)
1 – Arc has been flipped
0 – Arc has not been flipped

NEW – Any feature added (i.e., new) in this release
1 – A new feature
0 – Not a new feature

2. **hydrshai.shp** – (Hydro SHAID Shapefile) A shapefile containing all SHAIDs (Simple Hydro Areas) in the 24K hydro coverage. SHAIDs are for hydro features only and do not contain islands or uplands. SHAIDs contain various descriptive attributes, including names and Water Body Id Codes (WBICs). Use this shapefile for cartographic and analytical purposes pertaining to water areas.

Item Definitions:

Item Name	Length		Type
SHAPE			Geometry
AREA	18	3	Double
PERIMETER	18	3	Double
SHAID_	9		Long Integer
SHAID_NO *	9		Long Integer
SHAIDNAME *	50		Text
SHAIDWBIC *	9		Long Integer
RIVSYSNAME *	50		Text
RIVSYSWBIC *	9		Long Integer
SHAID_TYP *	2		Text
DURATION	2		Text
LANDLOCKED	3		Text
HYD_VER	9		Long Integer
GEOM_CHFLG	9		Long Integer
NAT_CHFLG	9		Long Integer
GNIS_CHFLG	9		Long Integer
WBIC_CHFLG	9		Long Integer
NEW	9		Long Integer

* Items indexed to accelerate logical queries.

Item Descriptions:

SHAPE – Default shapefile item
AREA – Polygonal area, default Arc item in coverage units (square meters) from coverage
PERIMETER – Polygonal perimeter, default Arc item from coverage
SHAID_ – Record number, default Arc item from coverage
SHAID-ID – Identification number; default ArcInfo item from coverage

SHAID_NO – A unique numerical identifier for each SHAID. This item is a primary key. This item is indexed.
SHAIDNAME – (Simple Hydro Area Name) The name of the Simple Hydro Area (SHAID) Name derived from Geographic Name Information System (GNIS). This item is indexed.
SHAIDWBIC – (Simple Hydro Area Water Body ID Code) The Water Body ID Code (WBIC) of the Simple Hydro Area (SHAID). This item is indexed.

<WBIC>	The WBIC provided by ROW.
0	No WBIC provided from ROW to assign to that feature.

RIVSYSNAME – (River System Name) The name of the river system. This item is indexed. Names based on the USGS Geographic Names Information System (GNIS). Excluding in-coming tributaries, any SHAID holding the same name as the main river to which it is attached would be considered part of that river system. Examples: reservoir/flowages, backwaters and secondary flow channels (braided streams).

<GNIS Name>	The name provided by GNIS.
'Unnamed'	No GNIS name for that feature.

RIVSYSWBIC – (River System Water Body ID Code) The Water Body ID Code (WBIC) of the river system. This item is indexed. WBICs from the DNR's Register of Waterbodies (ROW) database. Excluding in-coming tributaries, any SHAID holding the same WBIC as the main river to which it is attached would be considered part of that river system. Examples: reservoir/flowages, backwaters and secondary flow channels (braided streams).

<WBIC>	The WBIC provided by ROW.
0	No WBIC provided from ROW to assign to that feature.

SHAID_TYP – A two-character code for each region. The code represents areal water features. This item is indexed.

BA	Backwater
CB	Cranberry Bog
DP	Duck Pond
DC	Ditch or Canal
FH	Fish Hatchery or farm
FE	Flooded Excavation (e.g. pits, quarries, old mines)
IA	Inundation Area
IW	Industrial Waste Pond
LP	Lake or Pond
RF	Reservoir or Flowage
ST	Double-line Stream
SD	Sewage disposal pond or filtration beds
TP	Tailings Pond
UN	Unknown hydrography polygon
ZZ	Convoluted Stream

DURATION – A code for all arcs that indicates the span of time in which the feature contains water

PN	Perennial (based on cartographic symbolization)
FX	Fluctuating (for SHAID_TYP = 'IA' and 'CB')
IT	Intermittent (based on cartographic symbolization)
NA	Not Applicable (for SHAID_TYP = 'UN')

LANDLOCKED – Indicates whether or not a water feature is part of a landlocked hydro network.

YES	Part of hydro network that does not flow out of the state.

NO Part of network that flows into Lake Superior, Lake Michigan or the Mississippi River

HYD_VER – A numeric value indicating the most recent release number in which the feature was edited. The first release will have all SHAIDs valued at 1.

GEOM_CHFLG – Any dimensional or positional changes to the feature.
1 – Feature has been changed geometrically
0 – Feature has not been changed geometrically
NAT_CHFLG – Any change to the natural attributes of the feature (SHAID_TYP, DURATION or LANDLOCKED).
1 – At least one natural attribute of the feature has changed
0 – No natural attributes have changed
GNIS_CHFLG – Any change to the GNIS items (SHAIDNAME or RIVSYSNAME)
1 – Either or both name fields have changed
0 – No name change
WBIC_CHFLG – Any change to the WBIC items (SHAIDWBIC or RIVSYSWBIC)
1 – A WBIC attribute has been altered
0 – WBICs unchanged
NEW – Any feature added (i.e., new) in this release
1 – A new feature
0 – Not a new feature

3. **hydtstem.shp** – (Hydro STEM Shapefile) A measured shapefile containing all STEMs (Simple Transport Element Measurement) system in the 24K hydro coverage. The STEM system is the linear referencing system used for dynamic placement of water-related data along linear water features that carry flow (a.k.a. transport features). STEMs only contain attributes pertaining to linear referencing. This shapefile is to only be used for linear referencing purposes.

Item Definitions:

Item Name	Length		Type
SHAPE			Geometry
STEM_	9		Long Integer
STEM-ID	9		Long Integer
STEM_NO *	9		Long Integer
HYD_VER	3		Short Integer
LOMEAS	18	3	Double
HIMEAS	18	3	Double
MILES	18	3	Double
LENGTH	18	3	Double
UNIT	4		Short Integer
GEOM_CHFLG	1		Short Integer
FLIP_CHFLG	1		Short Integer
NEW	1		Short Integer

* Items indexed to accelerate logical queries.

Item Descriptions:
SHAPE – Default shapefile item
STEM_ - Record number; default ArcInfo item from coverage
STEM-ID – Identification number; default ArcInfo item from coverage

STEM_NO – A unique numerical identifier for each route. This item is a primary key. This item is indexed.
HYD_VER – A numeric value indicating the most recent release number in which the feature was edited. The first release will have all stems valued at 1.
LOMEAS – The low measure of the STEM route (always 10).
HIMEAS – The high measure of the STEM route (always an integer multiple of 10).
MILES – Length in miles
LENGTH – Length in meters
UNIT – Numerical difference of LOMEAS and HIMEAS
GEOM_CHFLG – Any dimensional or positional changes to the feature.
1 – Feature has been changed geometrically
0 – Feature has not been changed geometrically
FLIP_CHFLG – Route that has been flipped (direction reversed)
1 – Route has been flipped
0 – Route has not been flipped
NEW – Any feature added (i.e., new) in this release
1 – A new feature
0 – Not a new feature

4. **hydrupld.shp** – (Hydro Upland/Island Shapefile) A shapefile containing all upland and island polygons in the 24K hydro coverage. This is a subset of **hydppoly.shp**. These polygons have descriptive attributes. Some islands may have names, but in most cases they are unnamed. No water body id codes exist for islands. Use this shapefile for analysis and cartographic purposes pertaining to uplands and islands.

Item Definitions:

Item Name	Length		Type
SHAPE			Geometry
AREA	18	3	Double
PERIMETER	18	3	Double
HYDNW924_	9		Long Integer
HYDNW924-I	9		Long Integer
NAME	50		Text
POLY_TYP	2		Text
OH_COL_MTH	6		Text
BUILD_DATE			Date
HYD_VER	9		Long Integer

Item Descriptions:
SHAPE – Default shapefile item
AREA – Polygon area; default ArcInfo item from coverage
PERIMETER – Polygon perimeter; default ArcInfo item from coverage
HYDNW924_ - Record number; default ArcInfo item from coverage
HYDNW924-I – Identification number; default ArcInfo item from coverage
NAME – Name of the polygon. Names based on the USGS Geographic Names Information System (GNIS).

<GNIS Name>	The name provided by GNIS.
'Unnamed'	No GNIS name for that feature. “Unnamed” only applies to water polygons and islands.
'NA'	Not applicable. NA applies to all uplands

POLY_TYP – (Polygon Type) A two-character code for each polygon. The code represents areal land features.

IS	Island
UP	Upland – all non-water polygons other than islands

OH_COL_MTH – A numeric code indicating the method of data conversion

MLT004 Polygons composed of arcs with various attributes – see arc attributes

BUILD_DATE – A processing date indicating when the feature was added and verified by the editor.

HYD_VER – A numeric value indicating the most recent release number in which the feature was edited. The first release will have all polygons valued at 1.

5. **hydppoly.shp** – (Hydro Polygon Shapefile) A shapefile containing all polygons in the 24K hydro coverage. Polygons contain various descriptive attributes, including names and water body id codes (WBICs). However, we do not recommend this shapefile to be used for cartographic or analytic purposes pertaining to water areas. The water areas are divided into many pieces due to the addition of network features and, in many cases, do not represent complete water bodies. This Shapefile is only available upon request. Use **hydrshai.shp** for analysis and cartographic purposes pertaining to water areas, and use **hydrupld.shp** for analysis and cartographic purposes pertaining to uplands and islands

Item Definitions:

Item Name	Length		Type
SHAPE			Geometry
AREA	18	3	Double
PERIMETER	18	3	Double
HYDNW924_	9		Long Integer
HYDNW924-I	9		Long Integer
SW_NO	9		Long Integer
NAME	50		Text
WBIC	9		Long Integer
POLY_TYP	2		Text
DURATION	2		Text
LANDLOCKED	3		Text
OH_COL_MTH	6		Text
BUILD_DATE			Date
HYD_VER	9		Long Integer
XREF	9		Long Integer
WBIC_BY	7		Text
WBIC_DATE			Date
WBIC_STAT	10		Text

Item Descriptions:

SHAPE – Default shapefile item

AREA – Polygon area; default ArcInfo item from coverage

PERIMETER – Polygon perimeter; default ArcInfo item from coverage

HYDNW924_ - Record number; default ArcInfo item from coverage

HYDNW924-I – Identification number; default ArcInfo item from coverage

SW_NO – (Surface Water Number) A unique numerical identifier for each polygon. This item is a primary key.

NAME – Name of the polygon. Names based on the USGS Geographic Names Information System (GNIS).

<GNIS Name>	The name provided by GNIS.
'Unnamed'	No GNIS name for that feature. "Unnamed" only applies to water polygons and islands.
'NA'	Not applicable. NA applies to all uplands

WBIC – The Water Body ID Code (WBIC) of the polygon. WBICs from the DNR's Register of Waterbodies (ROW) database.

<WBIC>	The WBIC provided by ROW. WBIC values only apply to water polygons.
0	No WBIC provided from ROW to assign to that feature. 0's only apply to water polygons..
-1	Not applicable. -1 applies to all polygons that do NOT contain water (i.e., islands and uplands).

POLY_TYP – (Polygon Type) A two-character code for each polygon. The code represents areal water and land features.

BA	Backwater
CB	Cranberry Bog
DP	Duck Pond
DC	Ditch or Canal
FH	Fish Hatchery or farm
FE	Flooded Excavation (e.g. pits, quarries, old mines)
IA	Inundation Area
IS	Island
IW	Industrial Waste Pond
LP	Lake or Pond
RF	Reservoir or Flowage
ST	Double-line Stream
SD	Sewage disposal pond or filtration beds
TP	Tailings Pond
UN	Unknown hydrography polygon
UP	Upland – all non-water polygons other than islands
ZZ	Convoluted Stream

DURATION – A code that indicates the span of time in which the hydrographic feature contains water (i.e., intermittent, fluctuating, perennial).

PN	Perennial (based on cartographic symbolization)
FX	Fluctuating (based on POLY_TYP *and* cartographic symbolization) e.g. inundation areas, cranberry bogs, backwaters...
IT	Intermittent (based on cartographic symbolization)
NA	Not applicable. NA applies to all polygons that do NOT contain water (i.e., islands and uplands).

LANDLOCKED – Indicates whether or not a water feature is part of a landlocked hydro network.

YES	Part of hydro network that does not flow out of the state.
NO	Part of network that flows into Lake Superior, Lake Michigan or the Mississippi River

NA Not Applicable. NA applies to all polygons that do NOT contain water (i.e., islands and uplands).

OH_COL_MTH – A code indicating the method of data conversion

MLT004 Polygons composed of arcs with various attributes – see arc attributes

BUILD_DATE – A processing date indicating when the feature was added and verified by the editor.

HYD_VER – A numeric value indicating the most recent release number in which the feature was edited. The first release will have all polygons valued at 1.

XREF – Primary key link to GNIS data.

WBIC_BY – ID of editor who verified WBIC

WBIC_DATE – Date individual feature was quality assured for WBIC

WBIC_STAT – Indicates current status of WBIC designation

LOCATED – Feature does not have final approval from Don Fago.

NOT ASSIGNED – Feature has not been given a WBIC value.

ACCEPTED – Feature has been given a WBIC value.

NA – Applied to uplands and islands

6. **hydpmask.shp** – (Hydro Polygon Mask Shapefile) A shapefile containing a combination of the Wisconsin state boundary and the shorelines along Lake Michigan and Lake Superior. This shapefile also has an outlying box that closes off the bounding area, and, therefore, can be filled in and used as a mask. The mask is to serve the purposes of covering over the 1000 meter hydro buffer that extends beyond the Wisconsin state boundary or out into the Great Lakes. In other words, the mask allows for a clean cut of the hydro features along the outer limits of the hydro layer when creating maps.

Item Definitions:

Item Name	Length		Type
AREA	12	3	Float
PERIMETER	12	3	Float
HYDPMASK#	11		Double
HYDPMASK-ID	11		Double
INSIDE	19	3	Double

Item Descriptions:

AREA – Polygon area; default ArcInfo item

PERIMETER – Polygon perimeter; default ArcInfo item

HYDPMASK_ – Record number; default ArcInfo item

HYDPMASK -ID – Identification number; default ArcInfo item

INSIDE – Item used to distinguish between portion of mask inside or outside of Wisconsin.

Inside = 0 – outside of the state of Wisconsin

Inside = 1 – inside the state of Wisconsin